Effects of mindfulness training on preadolescents' self-regulation and school-related outcomes

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Open-Minded

Introduction

- **Self-regulation** (SR) is characterized by intrinsic processes of cognitive, emotional, and behavioral control, which are aimed at flexibly adapting oneself to the current context or at achieving a goal (cf. Nigg, 2017).
- SR is associated with academic achievement, wellbeing, and health (ibid.).
- **Preadolescence** has been proposed as key developmental stage to foster SR skills.
- **Mindfulness**-based programs are discussed as a promising intervention strategy to this end.

- **Goals** of the present study: investigating effects of mindfulness practice on preadolescents' SR, school-related and health outcomes by
  - contrasting mindfulness training with a concentration training (active control group) and effects of maturation/schooling (passive control group)
  - combining measures of objective performance, self-report, and physiological measures in terms of cortisol day profiles

- **Hypotheses**: Mindfulness training enhances SR, school-related & health outcomes more strongly than a concentration training (active control group) and maturation/schooling (passive control group).

Method

Design

Condition	T1 (9/2013)	Treatment	T2 (2/2014)
Experimental (n=16)	Pretest	Mindfulness training	Posttest
Active control (n=8)	Pretest	Concentration training	Posttest
Passive control (n=10)	Pretest	-	Posttest

Participants: 34 pupils (age: mean=10.80, SD=0.53; gender: 16 male, 18 female)

Interventions

- Mindfulness training: adapted version of the Mindfulness Based Stress Reduction method (Kabat-Zinn, 2005)
- Concentration training: German Marburg Concentration Training (Krowatschek, Krowatschek, & Reid, 2011)

Selected dependent measures

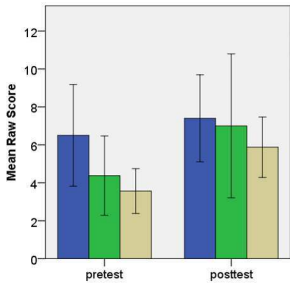
- Impulsivity score of the IVE (Stadler et al., 2004)
- Stress-regulation strategies of the SSKJ 3-8 (Lohaus et al., 2006)
- Diurnal cortisol profiles (intervention groups only)
- Test of Verbal Learning and Memory (VLMT; Helmstaedter et al., 2001; intervention groups only)

Statistical analysis

- Linear mixed-effects modeling
- Predictors: participant, gender, time (pre- vs. posttest), group, interaction of time with group
- Graphs display results of selected dependent measures and are accompanied by **significant effects** ($p < .10$).

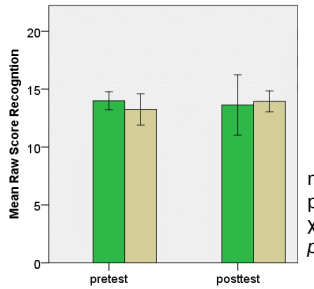
Results

Impulsivity



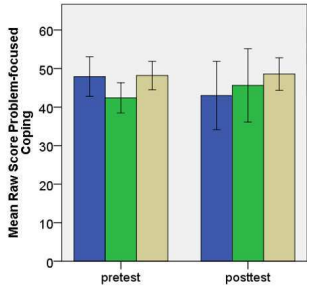
main effect of time, $\chi^2(1) = 12.87$, $p = .0003$

School-related outcome: VLMT



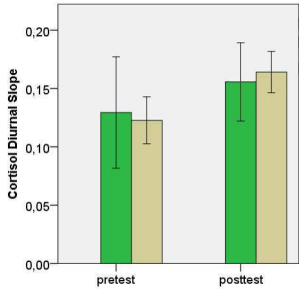
main effect of participants, $\chi^2(1) = 5.92$, $p = .02$

Stress-regulation strategies



marginally significant interaction of time with group, $\chi^2(2) = 3.88$, $p = .14$

Diurnal cortisol profiles



main effect of time, $\chi^2(1) = 10.17$, $p = .001$

Conclusions

- Mindfulness training does not enhance SR, school-related and health outcomes more strongly than a concentration training (active control group) and maturation/schooling (passive control group).
- Both mindfulness training and concentration training showed improved problem-focused coping and diurnal cortisol profiles.
- Results differ from positive effects of mindfulness training on several computer-based cognitive measures found in the same sample of preadolescents (Wimmer et al., 2016) and they partly contradict a recent meta-analysis of mindfulness-based interventions with youth (Klingbeil et al., 2017).
- Future investigations of mindfulness could benefit from a multi-method perspective.

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